

1 ADAPTIVELY CONFIGURABLE CLASS-A/CLASS-B TRANSMIT DAC
FOR TRANSCEIVER EMISSION AND POWER CONSUMPTION CONTROL

ABSTRACT

5 A power efficient and reduced electromagnetic interference (EMI) emissions transmitter for unshielded twisted pair (UTP) data communication applications. Transmit data is processed by a digital filter. The digital filter output data is converted to a current-mode analog waveform by a digital-to-analog converter (DAC). The digital filter is integrated with the DAC binary decoder in a memory device such as a ROM with time multiplexed output. DAC line driver cells are adaptively configurable to operate in either a class-A or a class-B mode depending on the desired operational modality. A discrete-time analog filter is integrated with the DAC line driver to provide additional EMI emissions suppression. An adaptive electronic transmission signal cancellation circuit separates transmit data from receive data in a bidirectional communication system operating in full duplex mode. For a multi-transmitter system, 20 timing circuitry staggers the time base of each transmitter to reduce the aggregate EMI emissions of the multi-transmitter system.

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